

Amendments to the Claims

Following is a complete set of claims as amended with this Response. This complete set of claims includes amended claims 1, 15-18, 22 and new claims 23-25.

1. (Currently Amended) A system for automating review of capture verification by a medical practitioner, the system being configured for use with an implantable stimulation device implanted in a patient and a programmer operated by the medical practitioner and configured to remotely communicate with the implantable stimulation device, the system comprising:

autocapture means for performing automatic capture verification through the implantable stimulation device to detect a presence of a captured cardiac event and an absence of a captured cardiac event when the captured cardiac event is expected;

control means, responsive to detection of presence and absence of captured cardiac events by the autocapture means, for generating a an electrogram having a visual representation of the presence and absence of the captured cardiac event; and

display means for displaying the visual representation to the medical practitioner, to permit the medical practitioner to examine and analyze the performance of the automatic capture verification;

wherein the control means comprises means for marking the captured cardiac event in the visual representation with a text marker representative of capture and means for marking absence of the captured cardiac event with a text marker representative of absence of capture in a location in the visual representation where the captured cardiac event was expected to occur.

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2. (Original) The system of claim 1, further comprising:
first selection means, operatively coupled to the autocapture means, for selecting one of an atrial and a ventricular chamber of the patient's heart at which the capture verification is performed.
3. (Original) The system of claim 1, wherein:
the autocapture means comprises a plurality of unique means for automatic capture verification; and
the system further comprises second selection means, operatively coupled to the autocapture means, for selecting a particular one of the unique automatic capture verification means for performing the automatic capture verification.
4. (Original) The system of claim 1, wherein:
the autocapture means further comprises means for detecting a plurality of additional cardiac events occurring during the automatic capture verification, and
the control means further comprises means for identifying the plurality of additional cardiac events in the visual representation.
5. (Original) The system of claim 4, wherein the plural additional cardiac events comprise physiological atrial and ventricular events.
6. (Original) The system of claim 1, wherein the control means further comprises:
means for identifying in the visual representation a plurality of pacing events occurring during the automatic capture verification.
7. (Original) The system of claim 6, wherein the plural pacing events comprise atrial and ventricular pacing pulses.

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8. (Original) The system of claim 7, wherein:
each of the plural pacing events comprise amplitude and duration characteristics;
and
the control system further comprises means for recording, in the visual
representation, the amplitude and duration characteristics for the each pacing
event of the plurality of pacing events.
9. (Cancelled)
10. (Original) The system of claim 1, further comprising:
means for automatically assessing a pacing threshold value of the implantable
stimulation device;
means for adding a suitable safety margin to the pacing threshold value to
determine recommended pacing amplitude and pulse width; and
means for displaying the recommended pacing amplitude and pulse width.
11. (Original) The system of claim 10, further comprising:
third selection means operable for selectively activating the autothreshold means
from the programmer.
12. (Original) The system of claim 10, wherein:
the control means further comprises means for generating an additional visual
representation of the pacing threshold assessment; and
the additional visual representation is displayed to the medical practitioner on the
display means, to permit the medical practitioner to examine and analyze the
performance of the automatic pacing threshold assessment.
13. (Original) The system of claim 1, further comprising:
printing means operatively coupled to the control means for generating a printed
copy of the visual representation.

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14. (Original) The system of claim 12, further comprising:
printing means operatively coupled to the control means for generating a printed
copy of the additional visual representation.

15. (Currently Amended) A system for automating review of capture
verification by a medical practitioner, the system being configured for use with an
implantable stimulation device implanted in a patient and a programmer operated by the
medical practitioner and configured to remotely communicate with the implantable
stimulation device, the system comprising:

autocapture means for performing automatic capture verification through one of
the implantable stimulation device or the programmer;

detection means for detecting presence and absence of expected cardiac events
during the automatic capture verification;

control means for identifying a captured cardiac event when the captured cardiac
event is detected, and for identifying, when an expected captured event is not
detected, an absence of the expected captured cardiac event;

marking means for marking an electrogram of the patient with each of the
identified captured cardiac events and the absence of the expected captured
cardiac events with a pre-determined corresponding text marker; and

display means for displaying the electrogram with the text marker to the medical
practitioner to permit the medical practitioner to examine and analyze the
performance of the automatic capture verification.

16. (Currently Amended) A method for automating review of capture
verification by a medical practitioner, the method being implemented in an implantable
stimulation device implanted in a patient and a programmer operated by the medical
practitioner and configured to remotely communicate with the implantable stimulation
device, the method comprising:

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performing an automatic capture verification through one of the implantable stimulation device or the programmer by adjusting the stimulation device's stimulation pulse energy and by detecting a presence and absence of expected captured cardiac events;

generating an electrogram of the patient having a visual representation of the automatic capture verification on an output device located in the programmer, the visual representation being based on detection of the presence and absence of captured cardiac events to identify a presence of the captured cardiac events when the captured cardiac event is detected, and to identify an absence of the expected captured cardiac event when the cardiac event is not detected;

marking the captured cardiac event in the visual representation with a text marker representative of capture; and

marking the absence of the captured cardiac event with a text marker representative of absence of capture in a location in the visual representation at which the captured cardiac event was expected to occur.

17. (Currently Amended) The method of claim 16, wherein the electrogram is an step of performing automatic capture verification through one of the implantable stimulation device or the programmer, further comprising the steps of:

obtaining an intracardiac electrogram through the implantable stimulation device;
and
performing the automatic capture verification using the intracardiac electrogram.

18. (Currently Amended) The method of claim 16, wherein the electrogram is a step of performing automatic capture verification through one of the implantable stimulation device or the programmer, further comprising the steps of:

obtaining an surface electrocardiogram through the programmer; and
performing the automatic capture verification using the surface electrocardiogram.

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19. (Original) The method of claim 16, further comprising the steps of:
recording, in the visual representation, the amplitude and duration characteristics
for each pacing event.
20. (Cancelled)
21. (Previously Presented) The method of claim 19, further comprising the
step of:
automatically assessing a pacing threshold of the implantable stimulation device;
determining a recommended pulse amplitude and pulse width above the pacing
threshold to ensure capture; and
displaying the recommended pulse amplitude and pulse width on the
programmer.
22. (Currently Amended) A method for automating review of capture
verification by a medical practitioner, the method being implemented in an implantable
stimulation device implanted in a patient and a programmer operated by the medical
practitioner and configured to remotely communicate with the implantable stimulation
device, the method comprising the steps of:
- (a) selectively initiating automatic capture verification by the medical practitioner;
 - (b) performing automatic capture verification through the implantable stimulation
device;
 - (c) detecting, by at least one of the implantable stimulation device and the
programmer, presence of cardiac events and absence of expected cardiac
events during the automatic capture verification;
 - (d) identifying, by at least one of the implantable stimulation device and the
programmer, a captured cardiac event when the captured cardiac event is
detected, and when an expected capture event is not detected, identifying an
absence of the expected captured cardiac event;

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- (e) marking[[, by at least one of the implantable stimulation device and the programmer,]] an electrogram of the patient with at least one of the identified captured cardiac event and the absence of the expected captured cardiac event with a pre-determined corresponding text event marker;
- (f) generating, by at least one of the implantable stimulation device and the programmer, a visual representation of the identified cardiac events and the text event markers; and
- (g) displaying, at the programmer, the visual representation to the medical practitioner to permit the medical practitioner to examine and analyze the performance of the automatic capture verification.

23. (New) The system of claim 1, wherein the electrogram is at least one of an intracardiac electrogram and a surface electrocardiogram.

24. (New) The system of claim 15, wherein the electrogram is at least one of an intracardiac electrogram and a surface electrocardiogram.

25. (New) The method of claim 22, wherein the electrogram is at least one of an intracardiac electrogram and a surface electrocardiogram.